

ABSTRACT OF THE DISCLOSURE

Wireless communication is improved by simultaneously transmitting signals that are orthogonal to received signals. This technique is referred to as Orthogonal Division Duplexing or ODD. Channel characteristics may be estimated based on an analysis of the received signals. Subsequently, techniques used in the transmitting of signals may be adjusted based on the estimated channel characteristics. By using interleaved pilot sub-carriers, each end of a communications link may take measurements of channel conditions. These measurements may be used to adapt the transmission techniques used in the transmitter to the measured channel conditions. Advantageously, this adaptation can occur without the delay in reporting conditions that is characteristic of traditional adaptive communications systems.